



# **NTSB Investigation Hearing 787 Li-Ion Battery Panel 4 — 787 Battery Certification**

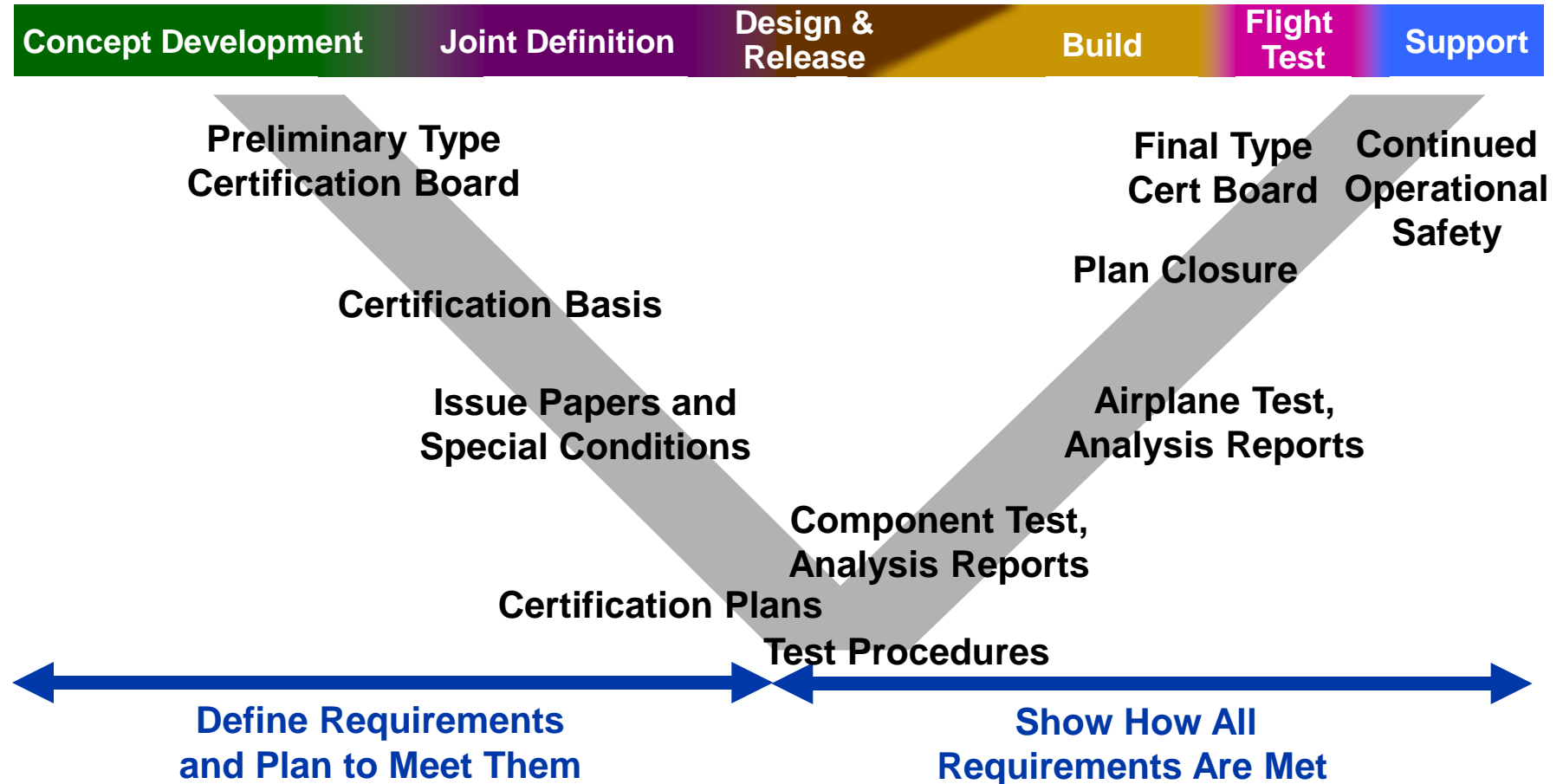
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# Certification for Safety

- The FAA certification process demonstrates compliance with regulatory safety requirements.
- The certification of the 787 was the most thorough certification ever conducted on a Boeing airplane.

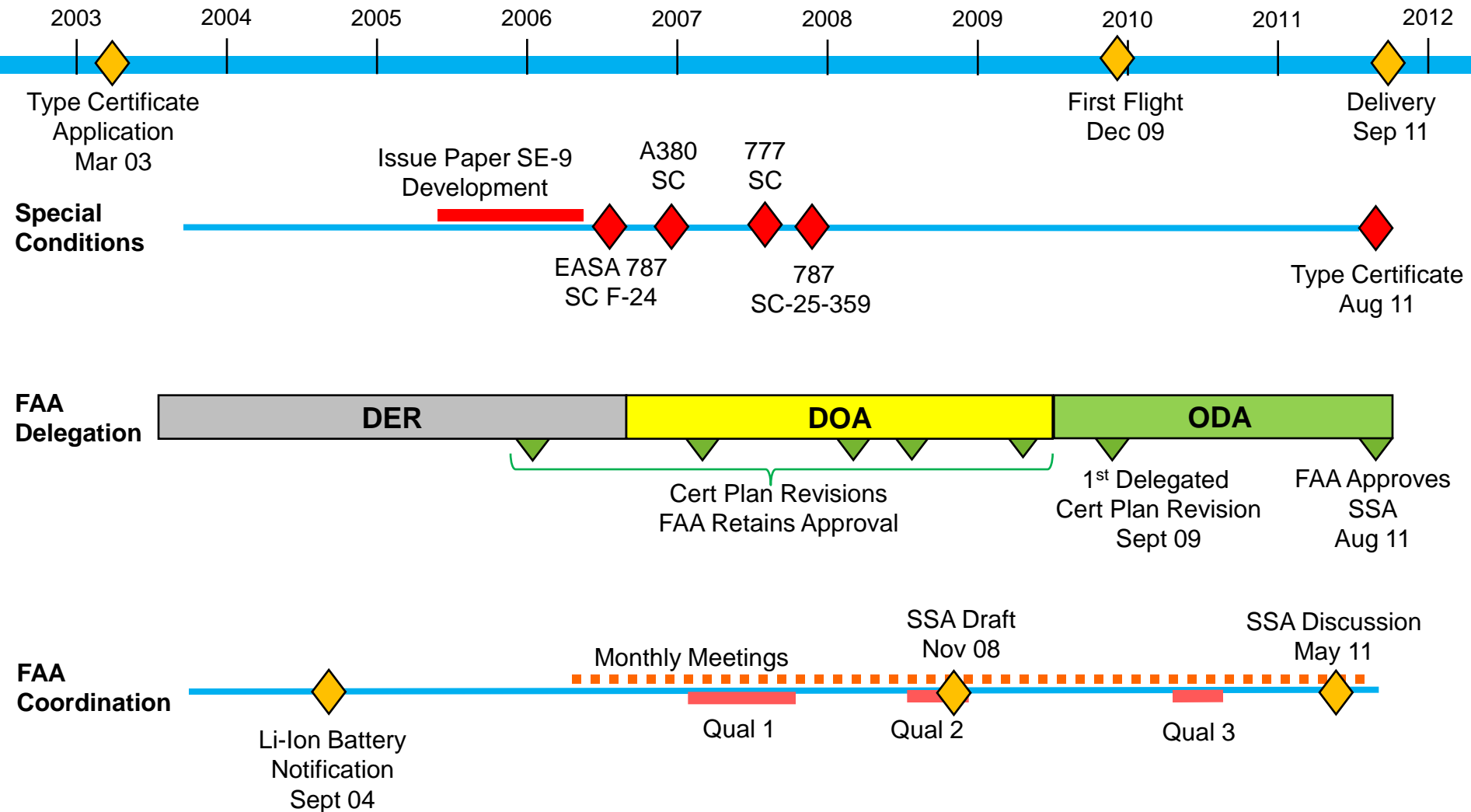


# Certification Program Flow Ensures Safety



***Information Complexity, Integration Increase With Time***

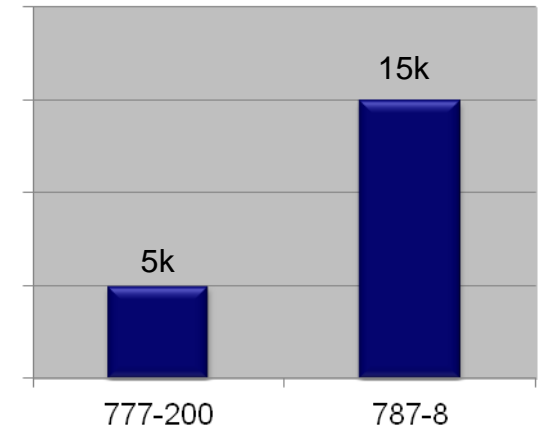
# 787 Battery Certification Timeline



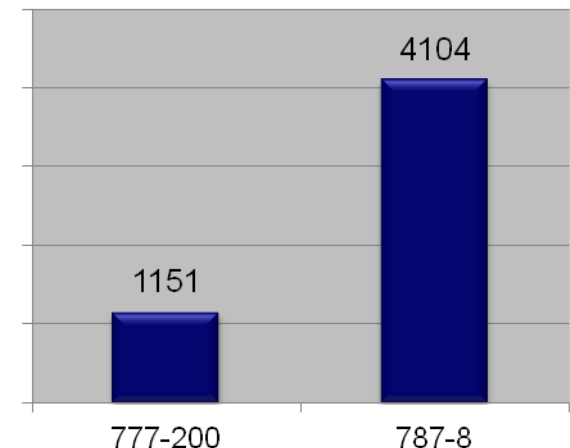
# Comparison of 787 and 777 Certification

- **FAA certification requirements for the 787 were more rigorous than for 777.**
  - Comparable technology advancement
  - 3 times more conformed certification tests
  - 3 times more data submittals showing compliance
  - 2 times more airplane ground testing
  - 3 times more integration testing
  - Increased process rigor (e.g., ISO 9000) for manufacturing and design

Total Certification Test Conformities



Total Compliance Data Submittals



***787 Certification Was Thorough and Comprehensive***

# Comparison of 787 and 777 Certification

Electrical Power System		
FAA Compliance Finding	777	787
Certification plan	Retained	Retained*
Safety assessment	Retained	Retained
Qualification test procedures	Delegated	Delegated
Qualification test reports	Delegated	Delegated
Qualification test witnessing	Delegated	Delegated

\*Substantial revisions were retained by the FAA with administrative or FAA prescribed updates delegated to Boeing.

***FAA Used Similar Delegation Levels to Certify the 777 and 787***

# Summary

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- Boeing followed a disciplined and time-tested process to ensure thorough coordination with the FAA and among its suppliers.
- The FAA certified the 787 after a rigorous certification effort.
- FAA certification validated that the 787 is safe and reliable.
- The 787 battery events are not acceptable. We have worked diligently to address them.



***August 26, 2011 — 787 Achieves Certification***





# Backup

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# Boeing Commercial Airplanes ODA Unit

